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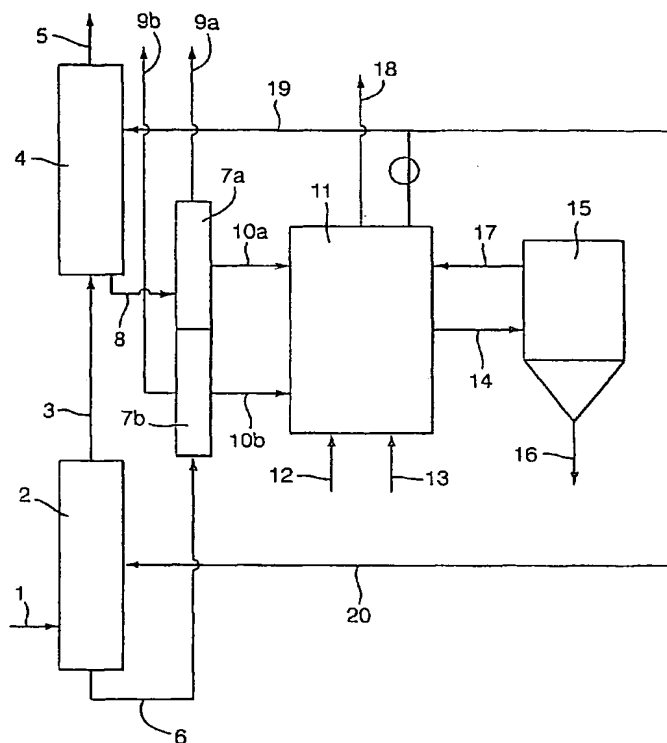
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(54) Title: A PROCESS FOR THE REMOVAL OF H<sub>2</sub>S AND MERCAPTANS FROM A GAS STREAM



(57) Abstract: The invention relates to a process for the removal of, H<sub>2</sub>S and mercaptans from a gas stream comprising these compounds, which process comprises the steps of: (a) removing H<sub>2</sub>S from the gas stream by contacting the gas stream in a H<sub>2</sub>S-removal zone with a first aqueous alkaline washing liquid to obtain a H<sub>2</sub>S-depleted gas stream and a sulphide-comprising aqueous stream; (b) removing mercaptans from the H<sub>2</sub>S-depleted gas stream obtained in step (a) by contacting the H<sub>2</sub>S-depleted gas stream in a mercaptan-removal zone with a second aqueous alkaline washing liquid to obtain a mercaptan-depleted gas stream and an thiolate-comprising aqueous stream; (c) contacting the combined aqueous streams comprising sulphide and thiolates obtained in step (a) and step (b) with sulphide-oxidizing bacteria in the presence of oxygen in an oxidation reactor to obtain a sulphur slurry and a regenerated aqueous alkaline washing liquid; (d) separating at least part of the sulphur slurry obtained in step (c) from the regenerated aqueous alkaline washing liquid; and (e) recycling the regenerated aqueous alkaline washing liquid to the H<sub>2</sub>S-removal zone in step (a) and to the mercaptan-removal zone in step (b). The invention further relates to a gas-treating unit for the removal of H<sub>2</sub>S and mercaptans and from a gas stream comprising these compounds in a process according to the invention.



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